

# Introduction

- **Definition of Engineering**

- *The profession in which knowledge of the mathematical and natural sciences, gained by study, experience, and practice, is applied with judgment to develop ways to use, economically, the materials and forces of nature for the benefit of mankind.*

# Professional Engineer

**Professional Engineer** is the term for registered or licensed engineers in some countries who are permitted to offer their professional services directly to the public.

The term Professional Engineer and the actual practice of professional engineering is legally defined and protected by a government body. In some jurisdictions only registered or licensed Professional Engineers are permitted to use the title, or to practice Professional Engineering.

*The earmark that distinguishes a licensed/registered Professional Engineer is the authority to sign and seal or "stamp" engineering documents (reports, drawings, and calculations) for a study, estimate, design or analysis, thus taking legal responsibility for it*

# Top Ten Benefits of an ENGINEERING CAREER

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- ❖ **Job Satisfaction**
  - ❖ **Variety of Career Opportunities**
    - ❖ **Challenging Work**
      - ❖ **Intellectual Development**
        - ❖ **Potential to Benefit Society**
          - ❖ **Financial Security**
            - ❖ **Prestige**
              - ❖ **Professional Environment**
                - ❖ **Technological and Scientific Discovery**
                  - ❖ **Creative Thinking**

# Number One

## Job Satisfaction

Studies show that , by far, the No. 1 cause of unhappiness among people everywhere is job dissatisfaction. It is important to find a career that provides you with enjoyment and satisfaction. Engineering provides a satisfying field of work for numerous reasons.

# Number Two

## Variety of Career Opportunities

What do Neil Armstrong, Jimmy Carter, and Alfred Hitchcock have in common? Though they eventually chose very different careers – an astronaut, a president, and a filmmaker. They all started with an engineering career.

# Number Three

## Challenging Work

In the engineering work world, there is no shortage of challenging problems. There will be no single answer, no answer in the back of the book, no professor to tell you that you are right or wrong. You will be required to devise a solution and persuade others that your solution is the best one.

# Number four

## Intellectual Development

An engineering education will “exercise” your brain, developing your ability to think logically and solve problems



# Number Five

## Potential to Benefit Society

As an engineer, you can choose to work on projects that clearly benefit society, such as cleaning up the environment, developing prosthetic aids for disabled persons, developing clean and efficient transportation systems, and increasing the standard of living in underdeveloped countries.

# Number Six

## Financial Security

While financial security should not be your only reason for choosing a career in engineering, if you decide to become an engineer you will be well paid. Engineering graduates receive the highest starting salary of any discipline.

# Number Seven

## Prestige

Engineers play a primary role in sustaining our nation's international competitiveness, maintaining our standard of living, ensuring a strong national security, and protecting public safety.

# Number Eight

## Professional Environment

Engineers are treated with respect and have certain freedoms in your work. You will have influence in what happens in your company. You will have many opportunities to learn and grow through your work.

# Number Nine

## Technological and Scientific Discovery

Do you know why golf balls have dimples on them? Do you know what a laser is or how a computer works? Do you know why split level houses experience more damage in earthquakes?

An engineering education can help you understand how these, and many other things in the world, WORK.

# NUMBER TEN

## **Creative Thinking**

Because we are in a time of rapid social and technological changes, the need for engineers to think **creatively** is greater now than ever before.

# Traits of a successful professional engineer

- Demonstrate a strong foundation in fundamentals through an applied competence in mathematics, science, computing, and engineering.
- Demonstrate the ability to apply innovative techniques to address unstructured problems specific to technical specialties in Electrical or Computer Engineering by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking.

- Interact with others, both individually and within multidisciplinary teams using effective oral and written communication skills and possessing the ability to deal with both technical and non-technical subjects when working with peers, supervisors, and the public.
- Develop an appreciation for the ethical duties incumbent on an Electrical or Computer Engineering professional including a commitment to lifelong learning and a concern for society and the environment.



# Measurable Outcomes

## (Upon Graduation)

- an understanding of fundamental mathematics and engineering science consistent with the problem solving abilities of a degreed professional in this field
- the ability to apply software to problems through the creation of new applications and the use of modern simulation tools
- the ability to participate in the multi-disciplinary process of design and qualification of a prototype

# Measurable Outcomes

## (Upon Graduation)

- the ability to plan and conduct laboratory experiments and to properly interpret and report the results
- the ability to identify and address engineering problems by extending the concepts of simple building blocks to system level design
- knowledge of the profession that supports informed and timely career decisions

# Measurable Outcomes

## (Upon Graduation)

- communication skills through a series of peer and faculty reviews, to include oral and written reports
- knowledge of contemporary global and societal issues and their relationship to professional ethics and engineering solutions
- early knowledge of key computer and study skills that are supportive of lifelong learning

# Pitfalls to Avoid!!!

- The faculty take cheating seriously, enforce the rules, and file misconduct forms

# Pitfalls to Avoid

- Computer Resources Misuse

Students are responsible for all actions on their accounts!
- No-No's
  - Do not spam others.
  - Do not lock a computer screen in the labs
  - Computers and resources are not to be used for personal gain.
  - Do not use computers to download copyrighted material for the purpose of piracy (mp3s. Movies, etc.)
  - Do not use computers and resources to download or store pornographic material.

# Pitfalls to Avoid

- Misuse of Facilities
  - Obey rules on smoking, food and drink
- Take part in maintaining our resources
  - Keep the student lounge in order (use trash can, reshelv books and magazines)
  - Take care of equipment